

ABSTRACT

Title: To study urinary abnormalities and renal histological changes in patients with chronic liver disease.

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Aim and objectives of the study: To study urinary abnormalities and renal histological changes in patients with chronic liver disease.

Methods and materials: During February 2013 to January 2015, consecutive patients with chronic liver disease and patients who had undergone shunt surgery or TIPSS were recruited prospectively for the study. Besides routine evaluation, urinalysis was done in all. Severity and cause of liver disease was ascertained on a cases-by-case basis. The urinalysis was termed as abnormal if either urine showed RBCs was $\geq 5/\text{HPF}$ or 24 hour urine protein was $\geq 150 \text{ mg/day}$.

In a retrospective analysis, we included all patients (during January 2012 to December 2013) who underwent renal biopsy with an underlying co-existent liver disease. Data regarding the etiology of liver and renal disease was abstracted from the medical records.

Results: 157 patients with chronic liver disease (Age : 44.7 ± 13.2 years; Male :134; Child status : A-35%, B-32.5%, C-31.8%) and 13 patients with post shunt/TIPSS (Age : 33.7 ± 113.3 years, Male: 7, Duration since shunt : 49.2 ± 49.6 months) were included for the study.

Urinalysis was abnormal in 29.9 % of patients with CLD and 53.8% % of patients with prior shunt/TIPSS. Prevalence of abnormal urinalysis was significantly higher in advanced liver disease (CTP B/C: 39.8%) as compared to early CLD (CTPA: 13.2% %; p-value: 0.001). Prevalence of nephrotic range proteinuria was 1.8%, 11.7% and 4.1% in CTP-A, CTP-B and CTP-C class of liver disease respectively.

Post shunt surgery or TIPSS patients have higher prevalence of abnormal urinalysis (53.8%) and nephrotic range proteinuria (16.7%) as compared to decompensated chronic liver disease.

The etiology of liver disease was not associated with abnormal urinalysis.

In the retrospective arm of the study, we had 36 patients with renal biopsy who had an underlying co-existent liver disease. Most common renal and liver pathology in these 36 patients was IgA nephropathy and Hepatitis B respectively. None of IgA nephropathy patients had portal hypertension (PHT).

Conclusion: There is higher prevalence of abnormal urinalysis and proteinuria with worsening liver disease.

Patients with either shunt surgery or TIPSS had higher prevalence of abnormal urinalysis and nephrotic range proteinuria as compared to compensated or decompensated chronic liver disease patients, this signifies that shunting and bypassing of liver of gut derived antigen / immune complexes leads to renal exposure of these agents and causes renal injury.

Most common pathology in liver disease patients was IgA nephropathy. None of these patients had PHT, this suggest some alternate mechanism (other than PHT) that leads to renal injury.

Key words: Urinalysis, Chronic liver disease, shunt surgery, TIPSS, IgA nephropathy